

*United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068*

MASTER OF MILITARY STUDIES

**TITLE: OPERATION NOBLE ANVIL, A CASE STUDY IN
EXPEDITIONARY AVIATION LOGISTICS**

**SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES**

AUTHOR: MAJOR JOSEPH F. WADE

AY 2001-02

Mentor: Dr. Craig A. Swanson

Approved:

Date:

Mentor: LtCol R. Scott Slater, USMC

Approved:

Date:

REPORT DOCUMENTATION PAGE

Form Approved OMB No.
0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 01-07-2002	2. REPORT TYPE Student research paper	3. DATES COVERED (FROM - TO) xx-xx-2001 to xx-xx-2002		
4. TITLE AND SUBTITLE Operation Noble Anvil, A Case Study in Expeditionary Aviation Logistics Unclassified		5a. CONTRACT NUMBER		
		5b. GRANT NUMBER		
		5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Wade, Joseph F. ;		5d. PROJECT NUMBER		
		5e. TASK NUMBER		
		5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME AND ADDRESS USMC Command and Staff College 2076 South Street MCCDC Quantico, VA22134-5068		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS USMC Command and Staff College 2076 South Street MCCDC Quantico, VA22134-5068		10. SPONSOR/MONITOR'S ACRONYM(S)		
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT APUBLIC RELEASE ,				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT See report.				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF: a. REPORT Unclassified		17. LIMITATION OF ABSTRACT Public Release	18. NUMBER OF PAGES 43	19. NAME OF RESPONSIBLE PERSON EM114, (blank) lfenster@dtic.mil
b. ABSTRACT Unclassified		19b. TELEPHONE NUMBER International Area Code Area Code Telephone Number 703767-9007 DSN 427-9007		
			Standard Form 298 (Rev. 8-98) Prescribed by ANSI Std Z39.18	

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF
THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY
REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND
STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES
TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

TABLE OF CONTENTS

Chapter	Page
Executive Summary	3
I. Introduction	5
II. Background	8
III. MALS Concept	12
Operation Noble Anvil	
IV. Background	18
V. Chronology of Significant Events.	22
VI. Concept of Aviation Logistics Support	26
VII. Planning Concept.	28
VIII. Conclusion.	35
Glossary of Acronyms.	38
Bibliography.	40

EXECUTIVE SUMMARY

Title: Operation Noble Anvil, A case study in
Expeditionary Aviation Logistics

Author: Major Joseph F. Wade, United States Marine Corps

Thesis: This paper is an analysis of the Marine Aviation Logistics Support Program (MALSP) as applied in support of Operation Noble Anvil. It will demonstrate that the program, as it exists today, must be further developed in order to meet the emerging demands of the Marine Air Ground Task Force (MAGTF) Aviation Combat Element (ACE) in support of 21st century contingency operations.

Discussion: The MALSP provides a capability to task-organize sustainable aviation maintenance capability tailored to support the Marine air forces deployed. It enables aviation logisticians to rapidly task organize, deploy, and sustain a Marine Expeditionary Force (MEF) sized ACE.

The support concept is based on critical assumptions that are no longer valid in today's strategic environment and the foreseeable future. Outlaw states, ethnic conflicts and the spread of weapons of mass destruction threaten regional stability and the MALSP must be prepared to support aviation operations for smaller-scale contingencies similar to that of Operation Noble Anvil.

Conclusion: Although the MALS is tasked organized to provide aviation logistics tailored to support the MAGTF ACE, the premise on which MALSP was formulated is not likely for the Warfighting scenarios anticipated in the 21st century. Further development and standardization of the MALSP concept must be undertaken in order to meet the requirements generated by an ACE that is tasked organized for the smaller scale-contingencies expected during the 21st century.

I. Introduction

The Marine Aviation Logistics Support Program (MALSP) provides a capability to task-organize sustainable aviation maintenance assets tailored to support the Marine air forces deployed. It enables aviation logisticians to rapidly task organize, deploy, and sustain a Marine Expeditionary Force (MEF) sized Aviation Combat Element (ACE). Today, American military forces must be prepared to successfully conduct multiple smaller-scale contingencies worldwide.¹ An analysis of the MALSP as applied in support of Operation Noble Anvil will determine that the program, as it exists today, must be further developed in order to meet the maintenance and upkeep demands of the Marine Air Ground Task Force ACE in support of 21st Century contingency operations.

In today's post Cold War environment, America remains the only super power in the world. At the same time, globalization has brought countries from around the world closer together to share ideas, goods, and information, resulting in more stability in many areas. Globalization has also created some new conflicts and additional stresses. Advances in technology have made it so that

¹ U.S. President, *A National Security Strategy for a New Century*, January 2000, 18.

outlaw states and ethnic conflicts can easily effect and threaten regional stability. Additionally, weapons of mass destruction, terrorism, drug trafficking and other international crime are global concerns that transcend national borders.² Due to the ever-changing strategic environment, not only must the U.S. defend the homeland, the U.S. must be prepared to respond to the full range of military threats abroad. Due to America's relative advantage in military technology and strength large scale military operations are unlikely, however, regional scale or smaller character centered threats, transitional threats, spread of dangerous technologies, and increased likelihood of failed states not only threaten America's national interests, but also threaten the sovereignty of neighboring countries, economic stability, and international access to resources.³ The U.S. military has been and will continue to be called upon to respond to smaller-scale contingency operations that encompass the full range of military operations short of major theater operations.⁴

America's demonstrated ability to rapidly respond and to decisively resolve crises provides the most effective

²Ibid, 1.

³Ibid, 2.

⁴Ibid, 18.

deterrent and sets the stage for future operations if force must be used.⁵ The operating forces must be organized to provide forward deployed or rapidly deployable forces capable of conducting expeditionary operation in any environment.⁶

The MALSP is the Marine Aviation Logistics Squadron's (MALS) concept for pre-positioning, deploying, and integrating aircraft support elements to provide for all areas of Marine Air Ground Task Force (MAGTF) Aviation Combat Element (ACE). The building blocks, however, that make up MALSP were developed during the Cold War era and are geared to support a Marine Aircraft Group (MAG)/Wing size ACE for a major regional conflict.⁷ The support concept is based on three critical assumptions; every contingency is supported with Maritime Preposition Force (MPF) assets, all MPF ports are located in close proximity to the ACE airfield, and the Fly In Support Package's (FISP) composition of only spare/repair parts is sufficient to sustain thirty days of combat level flying.⁸

⁵ Joint Chiefs of Staff, *National Military Strategy of the United States of America*, 1997.

⁶ Marine Corps Doctrinal Publication (MCDP) 1, *Warfighting* (Washington, DC: Department of the Navy, 20 June 1997), 54.

⁷ MAGs and Wing's differ in size and composition, depending on Type/Model/Series aircraft supported.

⁸ "Remote Expeditious Support Package (RESP)," information paper, provided on 9 January 2001 by LtCol James Griffin, 1.

In light of today's strategic environment where outlaw states and ethnic conflicts threaten regional stability, speed, agility, and flexibility of aviation logistics support are essential. An analysis of MALSP as applied in support of Operation Noble Anvil provides a better perspective with regard to how aviation logisticians must train and organize to support 21st century combat operations.

II. Background

Prior to the development of the Marine Aviation Logistics Support Program (MALSP) the organization of the aviation logistics support system was convoluted and disjointed. No standardized procedures to task organize aviation spare parts; support equipment (SE), mobile facilities (MFs), and aviation support personnel existed.⁹ Each individual unit depended on the in-house expertise of the Supply and Maintenance personnel to task organize for each deployment. Differing levels of experience resident in each unit created a situation where no two aviation maintenance units deployed with similar support packages.¹⁰ This ad hoc approach toward planning and organizing for

⁹ Naval Air Systems Command Naval Air Notice 5200, Subject: "Program Planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994, 1.

aviation logistics support proved not only to be inconsistent between units, but also time consuming. Aviation logistics planning and assembly of support packages tended to exceed most, if not all, of the other phases of organizing the ACE for a MAGTF.¹¹ Aviation logistics support was the proverbial long pole of the tent when deploying the ACE.

The development of the Marine Aviation Logistics Squadron (MALS) and the MALSP ushered in an aviation logistics support system and procedure capable of rapid task organization and deployment. The MALS consists of a commanding officer, who serves as the MAG Commanders single point of contact for aviation logistics support issues, an executive officer, an administrative officer, an operations officer, a logistics department, an aviation maintenance department, and an aviation supply department.¹² The organization of all aviation logistics functional areas under a single commander enhanced communication and cooperation between the aviation support activities and increased responsiveness to logistics demands.

¹⁰ LtCol P.C. Garant, USMC, *Marine Aviation Logistics Planners' Handbook*, (Cherry Point, NC: 2d Marine Aircraft Wing, ALD Plans, 2000), 3-7.

¹¹ Naval Air Systems Command Naval Air Notice 5200, Subject: "Program Planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994, 1.

MALSP identifies and integrates personnel, support equipment, mobile facilities, and spare parts required to support all aircraft types that make up a MAGTF ACE. Based on supporting the two major regional conflicts scenario, MALSP standardizes predetermined logistics support packages for each MALS. Each package contains the required equipment and personnel to support any contingency. The primary building block or package is the Contingency Support Package (CSP), which contains negotiated allowances of spare parts, SE, and MFs, as well as Intermediate Level¹³ (I-level) maintenance personnel required to sustain Marine aviation in combat.¹⁴

MALSP was fully implemented on 1 October 1988, when the existing Headquarters and Maintenance Squadrons (H&MS) were transformed into MALS.¹⁵ This move completed the task organization of aviation logistics elements. Personnel, SE, supply parts, and MFs were organized to support the Type Model Series (T/M/S) aircraft that the particular MALS supported (fixed wing or rotor wing). The MALS now possessed the ability to rapidly organize through the use

¹² CMC Washington D.C., message to Wing ALD's, subject: "Marine Aviation Logistics Support Program," 29006Z Sep 88.

¹³ Personnel responsible for general support of off-equipment repair for MAG aircraft.

¹⁴ Garant, 3-7.

of the MALSP that established core capabilities around a core table of organization (T/O) and individual common and peculiar contingency support packages.

The MALS mission is to provide aviation-logistic support, guidance, and direction to MAG squadrons on behalf of the commanding officer. MALS is tasked to provide I-level maintenance for aircraft and aeronautical equipment, provide aviation supply support for aircraft and Navy-funded equipment to all supported units, provide class V(A) ammunition logistic support to the MAG's squadrons, maintain the capability to deploy and provide MALSP support packages (including personnel) as an integral unit or as a tailored logistic elements assigned to another MALS.¹⁶

A typical MALS will consist of four types of allowance packages; two Fly-In Support Packages (FISP), two Peculiar Contingency Support Packages (PCSP), a Common Contingency Support Package (CCSP), and a Follow On Support Package (FOSP).¹⁷ In addition, a MALS specifically tasked to support an Aviation Training Squadron will be augmented with a Training Squadron Allowances (TSA). With the

¹⁵ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 2.

¹⁶ Marine Corps Reference Publication (MCRP) 5-12 D, *Organization of the Marine Corps Forces* (Washington, DC: Department of the Navy, October 1998), 3-22.

¹⁷ Garant, 3-8.

exception of the FISP, each package is used in support of the MAG's daily flight schedule and to conduct scheduled and unscheduled maintenance. The FISP contains aviation spare parts that are held in reserve for use in support of contingency operations only. The FISP assets are inspected and rotated on a periodic basis to ensure serviceability and that the parts are ready for issue when needed.

III. MALS Concept

In garrison a MALS is organized to support a MAG that consists of a peculiar Type/Model/Series (T/M/S) aircraft. For combat or contingency operations however, the Marine Corps task organizes to provide a tailored force, with the appropriate capabilities for a particular mission. The requirement to task organize means that Marine Aviation will likely deploy by combining (compositing) different T/M/S aircraft from several MAG's, into a single element. In addition to the compositing of aircraft, the transfer and receipt of the logistics support packages between compositing units must take place. This is complicated undertaking as the aviation logistics needs for sustained operations must be provided.¹⁸ The MALS, within the MAG supplying the aircraft squadron, will provide the

¹⁸ Naval Air Systems Command Naval Air Notice 5200, Subject: "Program Planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994, 2.

supporting logistics assets in the form of T/M/S specific building blocks. The MALS that these building blocks are drawn from is known as the Parent MALS; the MALS that receives the deploying CSP is known as the Host MALS. This building block approach enables the Marine aviation logistician to rapidly establish a comprehensive support package cable of supporting any aircraft mix.

Logistics planning for the MALSP requires that the logistics assets available at each MALS be considered and utilized in sourcing the various MALSP support packages. MALSP was developed using notional aircraft assignments to support a Marine Expeditionary Brigade (MEB) ACE.¹⁹ Logistics support requirements were then developed and organized into MALSP support packages to support the notional MEB ACE. The packages are capable of providing support for a predetermined number of particular T/M/S aircraft. Each building block allowance category is designed to support a specific type and number of aircraft at a predetermined level of repair and to be mutually supportive. The PCSP's are capable of being stacked to a CCSP at a host MALS much like building blocks. These building blocks can be arranged in any way that the

¹⁹ Naval Air Systems Command Naval Air Notice 5200, Subject: "Program planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994, 2.

operational commander requires and will form a logistics support base for the MAGTF ACE capable of supporting for up to 90 days at combat flying hour rates.²⁰

FISP's are organizational level parts support packages designed to support the Fly-In Echelon (FIE) aircraft of a MAGTF ACE. The FISP marries up with the organizational level GSE offloaded from the MPF ships or flown in with the FIE aircraft. This combination of assets is designed to provide readiness and sustainability for the deployed aircraft until the intermediate or MALS maintenance capability arrives in theater.

The FISP contains the spare parts normally removed and replaced from aircraft at the squadron organizational maintenance activity (OMA). The allowances are computed at combat utilization rates for a 30 day endurance period to support a particular T/M/S and quantity of aircraft during combat and are additive to Aviation Consolidated Allowance List (AVCAL) and Consolidated Ship Board Allowance List (COSAL) allowances.²¹ The AV CAL is the consolidated list of aeronautical material (tailored to each MAG) to support the maintenance and operations of assigned aircraft. The COSAL is a guide for determining the items and quantities that

²⁰ Garant, 3-8.

²¹ Ibid, 3.

should be stocked by the Supply Department to support the MAG's equipment. The FISP assets are protected stock and will be drawn only to rotate stock or maintain configuration control. FISP assets are not used to fill material requirements in support of garrison or peacetime operations, nor will they be used to provide supply pickups for garrison or peacetime deployments or training exercises without the approval of Headquarters Marine Corps (ASL). Additionally, if a FISP is used without activation of the MPF, assets from the Parent MALS must augment it.²²

CSP's consist of the common and peculiar intermediate ("I") level logistics support items required for the composite deployment of detachments/squadrons of particular T/M/S aircraft. The CSP AVCAL and COSAL allowances however, provide the spare parts to support both "O" and "I" levels of maintenance.²³ Personnel, SE, Individual Material Readiness List (IMRL), Mobile Facilities (MF's), and Spare/Repair parts (AVCAL/COSAL) make up the four basic elements of a CSP. CSP allowances for each of the four elements are computed at the combat utilization rate for a 90-day endurance period. IMRL items will be identified to the appropriate MALSP allowance category. From the master

²² Garant, 3-9.

²³ Garant, 3-10.

allowance documents, MALSP allowances are divided into PCSP, CCSP, FOSP, and TSA subcategories.

PCSP allowances consist of the peculiar items required to provide "I" level support for a specific T/M/S aircraft and associated SE that a MALS provides to a MAGTF ACE.

CCSP allowances consist of those Marine common assets that the rotary wing (R/W) or fixed wing (F/W) host MALS of an ACE provides to support all assigned aircraft. A F/W common item is one that has application to at least the F/A-18 and AV-8B aircraft that are part of an ACE. A R/W common item is one that has application to at least the CH-53, CH-46E, and the AH-1W aircraft that are part of an ACE. It should be noted here that for planning purposes, it is assumed that the F/W and R/W MALS will be geographically separated.²⁴

FOSP equipment consists of those items that are not required to initiate the assault, but are required to sustain the assault. These are items that, due to lift constraints, must be phased into a deployment area by use of Assault Follow-on Echelon or follow up shipping. Weight and cube are the primary considerations in designating

²⁴ Naval Air Systems Command Naval Air Notice 5200, Subject: "Program Planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994, 3.

material as a FOSP allowance.²⁵ FOSP allowances are built to a 90-day combat endurance level, and are distinctly identified in allowance documents provided to each MALS.

In addition to the FISP, PCSP, CCSP, and FOSP, certain designated MALS provide support for training squadrons attached to the supported MAG. TSA's are built to support a 30-day endurance period at peacetime flying hours.

The Maritime Preposition Force (MPF) and the Aviation Logistics Ship (T-AVB) can support all active force aircraft that are part of any MAGTF ACE. Along with the equipment and supplies needed to support a MEB sized MAGTF, each Maritime Preposition Ship Squadron (MPSRON) contains tailored O-level common GSE, peculiar GSE, and minimal I-level common GSE and aviation (Class V(A)) ordnance to support each ACE's pre-assigned mix of T/M/S aircraft.²⁶ The primary role of the USMC's two T-AVB's is to provide dedicated sea-lift for rapid movement of the aviation I-Level support needed to sustain USMC F/W and R/W aircraft. In the operating mode, the T-AVB transports 684 MF's (non-functional) in the transport mode, and 300 MFs (186 MFs functional, 80 Supply storage, and 34 non-functional) in the operating mode, along with 325 Marines.²⁷

²⁵ Ibid, 4.

²⁶ Garant, 3-12.

²⁷ Garant, 3-18.

Planning aviation ordnance to support the MAGTF ACE is a complex process that must be addressed separately. Although aircraft armament equipment (AAE) and aviation ordnance personnel are identified within MALSP, planning for aviation ordnance (munitions) allowances/requirements is not. Unlike other supply classes, Class V(A) requirements are target-driven and are determined by the targeting and Air Tasking Order process.²⁸ The aviation concept of operations, with estimated sortie rates and planned standard combat loads for those sorties drives the initial estimation process for Class V(A) sustainment and are beyond the scope of this paper. This study will be limited to examining the issues regarding AAE support and aviation ordnance planning considerations for personnel.

Operation Noble Anvil

IV. Background

The Kosovo crisis began in early 1998 when the Serbian military initiated large-scale operations to depopulate and destroy the Albanian majority in Kosovo. The fighting between the Serbian military and the Kosovar Liberation Army resulted in the displacement of hundreds of thousands of ethnic Albanians. Operation Allied Force was a NATO contingency response aimed at ensuring full compliance with

²⁸ Garant, 3-24.

UN Security Council Resolution 1199 (Sept. 23rd 1998).

Operation Noble Anvil was the American component of this NATO action to promote regional stability, cooperation and security, in support of the international community.²⁹ On 24 March 1999, NATO forces began air operations over the Federal Republic of Yugoslavia to stop Serbian military action, restore Kosovo's borders, and establish an international military presence in Kosovo.³⁰

On 10 April 1999, MAG 31 squadron commanders were informed that MAG 31 had received a pre-deployment order to deploy a force of two F/A-18D squadrons as an ACE to an unknown location.³¹ Due to the short notice nature of the deployment, the squadrons were to deploy "as is" in support of the Supreme Allied Commander's Operation Allied Force against the Former Republic of Yugoslavia. The MAG, tasked to deploy twenty-four F/A-18D aircraft overseas for combat, had to source all requirements with little to no outside assistance. The most ominous task for aviation logistics planners was that the deployed force had to be tasked organized, self-sustaining, and possess the full range of

²⁹ "Operation Allied Force," FAS, under keyword "Allied_Force," accessed on 13 January 2002.

³⁰ Ibid.

³¹ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 1.

repair and support capability at a yet to be determined site.

MALS-31 Aviation logistics planners were faced with developing an aviation logistics support package that was capable of providing all facets of logistics support from the in-transit requirements of the fly-in echelon to the sustainment of the force for a potential deployment of 180 days. Initially, it appeared that this task posed no special problems for planners, as the Marine Aviation Logistics Support Program (MALSP) provided a capability to rapidly task-organize a sustainable capability tailored to support the force deployed. After all, the planning assumptions on which MALSP was based were that every contingency is supported with Maritime Preposition Force (MPF) assets, all MPF ports are located in close proximity to the ACE airfield, and the Fly In Support Package's composition of only spare/repair parts is sufficient to sustain thirty days of combat level flying. Additionally, this logistics package is capable of being moved to the operation area by the T-AVB or by air.

The initial issues were clear, is the T-AVB to be used? Will the MPF ships be employed? The answer - don't plan on them! Plan for airlift and ensure your footprint

is as small as possible!³² This challenged aviation logistics planners to develop a viable aviation logistics support capability that would not require the Strategic Mobility Command (STRATCOM) to task every C-5 and C-17 the Air Force to move it to a yet to be determined location.

Aviation logistics planners were confident that the MALSP CSP's could more than provide the necessary support. There were, however, some problems. The problems were twofold: (1) the entire Marine Aircraft Group supported by MALS 31 was not deploying; and (2) the MALSP contingency support packages had a very large footprint; large enough, in fact, to be prohibitive to getting the necessary support in theater.³³

The MALS 31 CCSP, PCSP, and FISP identify the requirements necessary to provide a full range of common and peculiar intermediate level capabilities. The personnel requirements are identified on the 8810 table of organization. The SE and parts required to support the T/M/S of the fixed or rotor wing Aviation Combat Element (ACE) are identified on the MALS CCSP and PCSP IMRL and AVCAL. The mobile facilities that support the CCSP and PCSP equipment/capabilities are identified on the MALS

³² Ibid, 1.

³³ Ibid, 2.

Table of Basic Allowance (TBA). Lastly, the FOSP contains those heavy/long-term sustainment capabilities of MALS, such as complete engine repair and heavy machine shops, and consists of everything left behind once all aircraft and equipment are deployed. All told, this equates to approximately 624 Marines, 7 FISP mobile facilities, 249 CCSP mobile facilities, 56 PCSP, and several thousand short tons of associated aviation SE.³⁴ For this contingency, the assets required deploying this large amount of logistics support infrastructure in a short period of time tests even the most capable of strategic mobility capability.³⁵

V. Chronology of Significant Events

The following is a chronology of significant events leading to the successful deployment of MALS 31 (FWD) in support of twenty-four combat ready F/A-18D aircraft in support of Operation Noble Anvil.³⁶

- 15 April 1999, this movement requirement was submitted as the MALS-31 Time Phased Force Deployment Data (TPFDD).

- 21 April 1999, MAG-31 deployed its survey liaison reconnaissance party (SLRP) to Marine Forces Europe

³⁴ Ibid, 3.

³⁵ Balasi, Victor F. LtCol. USMC, Operations Officer, MALS 31, interviewed by the author, 9 December 2001.

(MARFOREUR) in Stuttgart, Germany. MALS-31 Members of the SLRP included the MALS-31 Executive Officer and the MALS-31 Mobile Facility Work Center Non-Commissioned Officer In Charge (NCOIC). The SLP attended several theatre intelligence briefings and dispatched to two possible deployment sites - Keschemet and Taszar airfields located within the boarders of NATO's newly accepted member Hungary (See Map 1, Taszar is located approximately 10 miles southwest of Kopsvar, Hungary.)

³⁶ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 5.



Map 1.³⁷

- 27 April 1999 the SLRP briefed the Combined Forces Air Component Commander (CFACC) that the preferred deployment site for the F/A-18Ds was Taszar, Hungary. The deployment site, a former Soviet Republic MIG-29 base approximately 50 miles from the Serbian border, was being used by the U.S. Army to support the movement of stabilization forces in and out of Bosnia-Herzegovina. The base could support the number of aircraft to be deployed, but would have to be operated under the Advanced Base Operational Concept due to the proximity of personnel to

³⁷ Hungary map, URL: <<http://www.lib.utexas.edu/maps/europe/>>

the Ammunition Supply Point. The SLRP also recommended increasing the number of aircraft tow tractors that were deployed from MALS-31 due to the distance from aircraft parking aprons, maintenance, and starting areas. Truly a remote site, this was indeed a perfect test for the MALS-31 RESP.

- 7 May 1999, the deployment order was received and identified Taszar as the MAG 31 (Fwd) bed-down site.

- 9 May 1999, the Advanced Party departed for Taszar. The Advanced Party included the MALS 31 Ordnance Officer and a Supply Officer. The rest of the MAG was awaiting airlift and tankers. The Advanced Party arrived in Hungary on the 10th.

- 20 May 1999 twenty-four F/A-18 aircraft lifted off from MCAS Beaufort enroute to Taszar Hungary. Sixteen aircraft arrived in Taszar on the 22nd of May, four on the 23rd of May and the last two on the 28th of May. MALS-31 Marines were already on the ground receiving ammunition, establishing an Ammunition Supply Point (ASP) and building ordnance in preparation for combat operations. The embarkation of the RESP continued right on the tail of the squadrons. Over the next 14 days the RESP continued to arrive and was immediately complexed at Taszar.

- 26 May 1999 MAG 31 flight operations from Taszar began and combat sorties began on 28 May.

- 7 June, the entire RESP was in country and operating. The RESP, consisting of 106 Marines and 686.6 short tons of equipment, capable of providing self-sustained maintenance capability for an indefinite period of time had been deployed on a combination of 12 C-5 and C-17 aircraft.³⁸

The MALS 31 RESP continued to provide aviation logistics support to MAG 31 (FWD) until its redeployment. The last elements of MALS 31 returned to MCAS Beaufort on the 19th of July.

During the period the RESP was employed: 1,950 short tons of ordnance was received, inventoried and stowed; 248 short tons of ordnance was assembled and delivered for combat sorties; 561 components were processed for repair; 236 repairables and 367 consumables were issued from the deployed contingency support packages; 1,800 short tons of ordnance was retrograded out of Hungary after hostilities; and the 24 deployed F/A-18D aircraft were maintained with an average mission capability rate of 92 percent.³⁹

³⁸ Ibid, 7.

³⁹ "MALS of the Year Award," award write up, provided on 16 December 2001 by MALS 31 Operations Officer, 3.

VI. Concept of Aviation Logistics Support

Under a normal MALSP scenario the ACE MAG deploys its MALS CCSP, and PCSP's to support any squadrons organic to the ACE MAG. If squadrons from other MAG's, not organic to the ACE MAG, are deployed, the MALS that normally supports that particular T/M/S squadron will also deploy a PCSP that marries up to the host MALS CCSP. Both MALS would also deploy their T/M/S specific FISP to support their deployed aircraft.⁴⁰

The deployment in support of Operation Noble Anvil differed from the anticipated scenario used to develop MALSP.⁴¹ Due to airlift constraints and a pre-deployment order directing that the supporting MAG be capable of self-sustainment for a time period up to 180 days, the MALS immediately recognized the necessity to deviate from established MALSP guidelines.⁴² MAG 31 was to be the first unit capable of self-sustainment and MALS 31 had to develop the aviation logistics package to provide that capability. To add to the aviation logistician's dilemma, a deployment site had not yet been determined. Decisions on capability

⁴⁰ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 3.

⁴¹ Balasi, Victor F. LtCol. USMC, Operations Officer, MALS 31, interviewed by the author, 9 December 2001.

tailoring could only be made based on the known logistics capability existing in the theater of operations. The many unknowns made tailoring difficult because of potential transportation problems. MALS-31 first coordinated with Commander Fleet Air Mediterranean (COMFAIRMED) in an effort to get an idea of existing F/A-18 repair and support capabilities in the region. Existing capability consisted of very limited engine, GSE, and calibration support and the possibility of tapping aircraft carriers operating in the region. This information posed another interesting dilemma; could MALS 31 depend on external organizations to provide timely support in an environment where transportation assets were scarce and combat readiness essential? MALS 31 opted to develop a support package based on a full range of maintenance and supply capabilities that could be tailored and prioritized, as more information became available. MALS 31 called this tailored capability the Remote Expeditionary Support Package (RESP).⁴³ The commitment by MALS 31 to embrace the

⁴² "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 1.

⁴³ Griffin, James R. Jr., LtCol. USMC, Commanding Officer, MALS 31, interviewed by the author, 9 January 2002.

concept of the RESP was the most important development in the aviation logistics planning effort.⁴⁴

VII. Planning Concept

Based on the aviation concept of operations MALS 31 developed an ad hoc support package capable of providing the personnel, equipment, replacement parts, and MFs for self-sustained support to deployed squadrons in any environment. The key elements of the planning concept were the development and sourcing of a MALS Surveillance, Liaison, and Reconnaissance Party (SLRP), enhancement of the existing FIE, and development of self-sustaining "I" Level aviation maintenance and supply support.⁴⁵ As the exact deployment location was still to be determined, the SLRP would play a vital role in not only providing intelligence back to the MALS planning cell, but also assisting the ACE Commander in the selection and approval process of the final bed-down site for the deployed aviation forces.⁴⁶ The SLRP identifies capabilities of all on-site units and tailors the RESP to ensure no duplication of capability is deployed. Additionally, the SLRP provides

⁴⁴ Balasi, Victor F. LtCol. USMC, Operations Officer, MALS 31, interviewed by the author, 9 December 2001.

⁴⁵ OPORD NOBLE ANVIL, Appendix 7, 1.

⁴⁶ Reynolds, S.A. LtCol. USMC, Executive Officer, MALS 31, interviewed by the author, 31 October 2001.

an assessment on resupply issues to determine RESP tailoring actions.

The MALS 31 presence in Hungary began with the arrival of the SLRP representative. The available bed-down sights were so austere that many of the supporting agencies became concerned regarding the supportability of the ACE. The MALS SLRP found himself personally briefing very senior service representatives such as the Deputy Director of Logistics HQ USAFE/LG and the Combined Air Force Component Commander.⁴⁷ It should be noted that the MALS SLRP representative was required to have an in-depth knowledge of the support requirements for the T/M/S aircraft to be deployed in order to assist the CFACC in selection of a bed-down site. A formerly communist MIG base located in Tazsar, Hungary was ultimately selected as the deployment site.⁴⁸

The MALS 31 enhanced FIE provided mission essential non-organic "I" level support to the deployed aircraft in order to expedite the initiation of combat operations prior to the arrival of the MALS RESP. The RESP provided the "I" level maintenance and supply support in the form of an

⁴⁷ LtCol S.A. Reynolds, After Action Report, Subject: "After Action Report for the Survey Liaison Reconnaissance Party (SLRP)" 5 June 1999, 2.

⁴⁸ DefenseLink, "Tazsar Airfield," *Marines*, 1 June 1999, 20.

enhanced PCSP.⁴⁹ Augmentation of the RESP, should it be required, would be provided as the circumstances dictate and delivered by first available means.

Due to the limited strategic lift available to deploy initial forces and the austere working environment in which the aircraft would operate MALS determined that all of the ground support equipment normally used by the squadron would be embarked with the flying squadron. Intermediate level support capabilities that were necessary to support the organizational level squadrons in transit and immediately upon arrival were deployed with the fly-in echelon. In addition to the requirement to provide an in-route support pack-up and the FISP assets, all ordnance related equipment to include, nitrogen rechargers, and personnel to support the FIE, limited power plants capability, hydraulics, airframes, quality assurance, cryogenics, forward looking infra-red (FLIR) pod, and support equipment repair had to be provided. These "I" level Marines provided support not organic to the squadrons but essential for combat operations or maintenance support for "I" level support equipment deployed with the "O" level squadrons. These "additional" MALS Marines were not extra

⁴⁹ "OPORD NOBLE ANVIL, Appendix 7," operations order, provided on 16 December 2001 by the Operations Officer of MALS 31, 1.

personnel, but the actual personnel that would deploy early had the deployment been a full MALSP deployment using the MPF.⁵⁰

According to MALSP, the FISP contains the supply support required to maintain 36 aircraft for up to thirty days of combat flying, however for this operation only 24 aircraft were deploying and a FISP was deployed to support them. Despite the seemingly adequate supply support for thirty days of combat flying, the MAG 31 (Forward) Commander planned for the full range of MALS sustainment capabilities to be in place and functioning at the deployment site no later than D+15.⁵¹ Since the TPFDD had already been submitted and could not be amended, the MALS was forced to further tailor and organize the RESP such that all required assets would meet the weight and cube restrictions.⁵² The RESP developed by MALS-31 was capable of providing the desired level of support for all of the critical F/A-18D systems, which based on historical data, required the most support. The RESP's operational capabilities and standard MF configurations were then reviewed to determine whether additional innovations could

⁵⁰ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 4.

⁵¹ Ibid, 5.

create space for additional capability to be deployed. That is, whether or not other capabilities could be consolidated into an MF that was not originally designed to contain it. For instance, to establish the repair capability for communications /navigation components the people, equipment and parts were easily identified. The detailed analysis identified that a micro-miniature repair capability was also required which added personnel, and another MF. To reduce the footprint MALS deployed only a micro-miniature repair station within the communications/navigation mobile facility.⁵³ Comparable decisions were made throughout the planning process.

Once the minimum support requirements and number of MFs were determined, the MALS had to develop the MF integration plan. How many integration units (INU's) were required to complex the RESP? Additionally, how could MALS maximize the effectiveness of the available strategic lift all the while maximizing the effectiveness of the repair capability as it arrives at the bed-down site? MALS first developed a proposed RESP complex diagram to determine which specific MFs had to be complexed together in order to function properly. A by-product of developing the complex

⁵² Griffin, James R. Jr., LtCol. USMC, Commanding Officer, MALS 31, interviewed by the author, 9 January 2002.

⁵³ Ibid.

was the identification of the logical flow of INU's and generators to power the complex. Aviation logistics planners through the use of historical usage data then identified and prioritized the most critical MF, INU, and generator requirements. Each prioritized capability along with its ancillary equipment and personnel could now be loaded as airlift was identified. The capability was packaged as personnel and equipment for example; the communications/navigation personnel accompanied their mobile facility aboard airlift. This arrangement not only enabled MALS to complex and initiate critical repair actions immediately upon arrival, but also to address any issues that surfaced regarding STRATCOM requirements for transport and inform the forward as well as rear elements regarding any difficulties or delays while in transit⁵⁴. Another advantage to this arrangement was that the ACE Commander could see at a single glance what capability arrived with each scheduled transport aircraft, and could easily ascertain the operational impact of a cancelled or delayed flight.

Upon finalization of the RESP configuration, an individual component repair listing (ICRL) was developed.

⁵⁴ "Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil," provided on 2 January 2002 by LtCol James M. Griffin Jr. (ret), 5.

The RESP ICRL provided aviation logistics planners a valuable logistics planning tool that listed the on-site repair capability and by its nature, provided a view of logistics requirements that would have to be outsourced to outside agencies. Planners could start establishing repair agreements with intra-theater organizations or increase supply spares allowances. Additionally, it enabled the MALS 31 Supply Department to tailor the footprint of the PCSP to pare those items for which repair capability would not be established at the remote site (e.g. engine repair). The aviation supply department could also source from the CCSP those items necessary to support the support equipment to be supported at the proposed deployment site.⁵⁵

At the completion of the aviation logistics planning process, MALS 31 deployed 106 Marines, 7 FISP mobile facilities, 34 PCSP mobile facilities and 12 CCSP mobile facilities.⁵⁶ The entire RESP was staffed and configured, and intra-theater logistics sources were secured and coordinated without knowledge of the actual deployment site.

VIII. Conclusion

⁵⁵ Bergman, Brad M. Maj. USMC (RET), Supply Officer, MALS 31, interviewed by the author, 28 November 2001. Bergman phone interview.

⁵⁶ "MALS 31 Command Chronology July 99-Dec 99," provided on 28 December 2002 by the MALS 31 Operations Officer, 7.

Although the MALS is tasked organized to provide aviation logistics tailored to support a MAGTF ACE, the premise on which MALSP was formulated is not valid for the warfighting scenarios anticipated in the 21st century. MALSP as it exists today is a good starting point, but is a method created to fight the last war. Planning for Operation Noble Anvil was a walk back in time for aviation logistics planners because MALS 31 planners relied exclusively on resident experience to tailor existing MALSP support packages to meet mission requirements and strategic lift restrictions simultaneously. This ad hoc approach to develop contingency support packages consumes large amounts of the only non-renewable resource available to aviation logistics planners, time.

The success of the MALS 31 RESP in supporting Operation Noble Anvil clearly demonstrates, that for expeditionary deployments of short duration that require aviation assets short of a MAG, a credible support capability can be deployed without an entire MALSP deployment. MALSP was designed to meet the National Military Strategy that required providing forces to win two major regional contingencies simultaneously. As such, current MALSP packages were formulated to provide self-sustained support for MEF/MEB sized ACE elements. MALSP

support packages are too large, too heavy, and too costly to transport in support of the shorter duration missions characteristic of smaller scale contingencies. The logistics effort required to support this enormous MALSP footprint also increases the demand on the already extended and strained lines of communication. Additionally, once a MALSP deployment has been executed the remain behind element of the host MALS can no longer provide adequate logistics support to the remainder of the MAG. The aviation units that remain behind are left with limited logistics support and MAG readiness quickly atrophies.

A review of recent conflicts clearly shows an increasing trend toward of short duration conflicts that fall short of major regional contingencies. The Marine Corps' expeditionary nature requires the development of an expeditionary aviation logistics capability that is effective, and that has reduced embarkation and re-embarkation requirements. The flexibility of the MALS 31 RESP provided that capability.

The development of the RESP was a deviation from the norm of MALSP and serves as a wake up call for aviation logisticians. MALSP must be further developed to answer questions such as, what if the T-AVB and MPF are not used? How can MALS support smaller scale contingencies where an

entire MEF or MEB is not deployed and airlift is limited? Clearly, one size does not fit all; the USMC will continue to be called upon to respond to contingencies where only a portion of a MAG will be deployed in support of the mission.

Further development and standardization of the MALSP concept must be undertaken in order for MALS to meet the requirements generated by the MAGTF Commander in Operational Maneuver from the Sea. Detailed development and standardization of the RESP concept is essential in order to ensure that MALSP is capable of providing a truly tasked organized and sustained level of aviation logistics support for an ACE that is tasked organized for the smaller scale-contingencies expected during the 21st Century.

GLOSSARY OF ACRONYMS

AAE- Aircraft Armament Equipment

ACE- Air Combat Element

AVCAL- Aviation Consolidated Allowance List

CCSP- Common Contingency Support Package

CFACC- Combined Force Air Component Commander

COMFAIRMED- Commander Fleet Air Mediterranean

COSAL- Consolidated Ship Board Allowance List

CSP- Contingency Support Package

FIE- Fly In Echelon

FISP- Fly In Support Package

FLIR- Forward Looking Infrared

FOSP- Follow On Support Package

F/W- Fixed Wing

GSE- Ground Support Equipment

H&MS- Headquarters and Maintenance Squadron

ICRL- Individual Component Repair List

I-LEVEL- Intermediate Maintenance Level

IMRL- Individual Material Readiness List

INU- Integration Unit

MAG- Marine Aviation Group

MAGTF- Marine Air Ground Task Force

MALS- Marine Aviation Logistics Squadron

MALSP- Marine Aviation Logistics Support Program

MARFOREUR- Marine Forces Europe

MEB- Marine Expeditionary Brigade

MEF- Marine Expeditionary Force

MF- Mobile Facility

MPF- Maritime Preposition Force

MPSRON- Maritime Preposition Ship Squadron

NALMAGTF- Norway Air Landed Marine Air Ground Task Force

NATO- North Atlantic Treaty Organization

NCOIC- Non-commissioned Officer in Charge

OMA- Organizational Maintenance Activity

PCSP- Peculiar Contingency Support Package

RESP- Remote Expeditionary Support Package

R/W- Rotary Wing

SE- Support Equipment

SLRP- Survey Liaison and Reconnaissance Party

STRATCOM- Strategic Mobility Command

T-AVB- Aviation Logistics Support Ship

TBA- Table of Basic Allowance

T/M/S- Type/Model/Series

T/O- Table of Organization

TPFDD- Time Phased Force Deployment Data

TSA- Training Squadron Allowance

USAFE- United States Air Force Europe

BIBLIOGRAPHY

CMC Washington D.C. Message to Wing ALD's. Subject: "Marine Aviation Logistics Support Program." 29006Z Sep 88.

Defense Link. "Taszar Airfield." *Marines*, 1 June 1999, 20-21.

Garant, P.C. LtCol USMC. *Marine Aviation Logistics Planners' Handbook*. Cherry Point, NC: 2d Marine Aircraft Wing, ALD Plans, 2000.

Hungary map. URL: <<http://www.lib.utexas.edu/maps/europe/hungary.jpg>>. Accessed on Internet 26 March 2002.

Joint Chief of Staff. *National Military Strategy of the United States of America*. 1997.

LtCol S.A. Reynolds. After Action Report. Subject: "After Action Report for the Survey Liaison Reconnaissance Party (SLRP)." 5 June 1999.

"MALS of the Year Award." Award write up. Provided on 16 December 2001 by MALS 31 Operations Officer.

"MALS 31 Command Chronology July 99-Dec 99." Provided on 28 December 2002 by the MALS 31 Operations Officer.

"Marine Aviation Logistics Support Program Revisited: MALS-31 (Forward)- Aviation Logistics During Operation Noble Anvil." Provided on 9 January 2002 by LtCol James M. Griffin Jr. (ret).

Marine Corps Doctrinal Publication (MCDP) 1. *Warfighting*. Washington, DC: Department of the Navy. June 1997.

Marine Corps Reference Publication (MCRP) 5-12 D. *Organization of the Marine Corps Forces*. Washington, DC: Department of the Navy, October 1998.

Naval Air Systems Command Naval Air Notice 5200, Subject: "Program Planning Document for United States Marine Corps Aviation Logistics Support Program," 2 September 1994.

"Operation Allied Force." FAS, under keyword Allied Force."

Accessed on 13 January 2002.

"OPORD NOBLE ANVIL, Appendix 7." Operations order.
Provided on 16 December 2001 by the Operations
Officer of MALS 31.

"Remote Expeditious Support Package (RESP)." Information
paper. Provided on 9 January 2002 by LtCol James M
Griffin Jr.

U.S. President. *A National Security Strategy for a New
Century*. January 2000.

Interviews:

Balasi, Victor F. LtCol. USMC. Operations Officer, MALS 31.
Interviewed by the author 17 October 2001.

Bergman, Brad. Maj USMC (Ret). Supply Officer, MALS 31.
Telephone interview by author 28 Nov 2001.

Davis, Donald E. Maj USMC. Maintenance Officer, MALS 31.
Telephone interview by author 20 November 2001.

Griffin, James R. Jr., LtCol. USMC. Commanding Officer,
MALS 31. Interviewed by the author, 9 December 2001.

Reynolds, Shaugnessy A. LtCol. USMC. Executive Officer,
MALS 31. Interviewed by the author, 31 October 2001.